

**Remarks/Arguments:**

Claims 1-3, 6, 7, and 9-36 were pending in this application. With this amendment, claim 19 is cancelled and its subject matter incorporated into claim 13. Therefore, claims 1-3, 6, 7, 9-18, and 20-36 are now the pending claims in this application.

**I. The Office Action Rejections**

Claims 13-15, 18, and 26 stand rejected under 35 U.S.C. §102(b) as anticipated by Walt (U.S. Patent No. 5,512,490), and claims 13, 15, 23, 24, and 26 stand rejected under 35 U.S.C. §102(b) as anticipated by Walt (U.S. Patent No. 5,244,813). Claims 1-3, 6, 7, 9, 10, 13-21, 25, 28-32, 34, and 36 stand rejected as obvious under 35 U.S.C. § 103 based on Wolfbeis et al. (U.S. Patent No. 5,407,829) in view of De Castro (U.S. Patent No. 5,834,626) and Wallach (U.S. Patent No. 6,495,368) and Jeffrey et al. (U.S. Patent No. 5,976,827) and Moretti et al. and Werkhoven et al. and Dojindo online. Claim 11 has been rejected as obvious based on the same seven references listed above and further in view of Walt '490. Claims 12, 24, 26, 27, and 35 have been rejected based on the same seven references listed above and further in view of Horan (U.S. Patent No. 6,149,952). Finally, claims 22 and 33 have been rejected based on the same seven references listed above and further in view of Bacon (U.S. Patent No. 5,030,420).

**II. The Applicants' Response**

**A. Lack of Anticipation**

As mentioned above, claim 13 has been amended to incorporate the features of claim 19. Amended claim 13 now requires the feature of "a barrier layer adapted to be disposed between the metal complex and the food, wherein the barrier layer is permeable to the food spoilage products but not to the metal or the detectable component." This feature, previously claimed in claim 19, was not rejected in the Office Action as anticipated by Walt '490 or Walt '813. Accordingly, the applicants respectfully submit that amended claim 13 is not anticipated by either of the Walt references and, for the reasons set forth below and previously, is now in a condition for allowance.

**B. Non obviousness: A lack of motivation to modify Wolfbeis**

The current Office Action rejects the pending claims under 35 U.S.C. §103(a) as obvious in view of a combination of the teachings of Wolfbeis, De Castro, Wallach, Jeffrey et al., Moretti et al., Werkhoven et al., and Dojindo online. The proposed combination of Wolfbeis with De Castro is critical to all of the rejections of all of the pending claims. For the reasons set forth below, the applicants contend that the combination of Wolfbeis and De Castro is based on an incorrect read of De Castro. In any event, the applicants contend that the obviousness rejection is based on hindsight and should also be withdrawn on that basis.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). For the following reasons, the applicants submit that the Examiner has failed to set forth a *prima facie* case for obviousness because the examiner fails to provide a proper motivation to combine the cited references.

The Office Action cites Wolfbeis as disclosing every feature of the claimed invention but for a disclosure of palladium-fluorophore or fluorexon complexes that undergo a ligand exchange reaction. The Office Action specifically identifies De Castro as disclosing a transition metal complex that undergoes a ligand exchange. Some of the remaining applied references, Wallach, Jeffrey, Morretti et al., and Werkhoven et al. (the "tertiary references"), are cited as rendering obvious the selection of a particular type of transition metal-ligand complex depending on the particular type of food product and microbial spoilage. Thus, the Office Action relies on De Castro as a way to link the four tertiary references with Wolfbeis.

The Examiner states at page 5, paragraph 10:

It would have been obvious to modify Wolfbeis and select a transition metal complex that undergoes a ligand exchange since De Castro teach[es] transition metal complex [...]. One

would have been substituting one detectable component for another for the same purpose: indicating the presence of sulfides in a gas sensor [...] via a change in color that can be examined visually [...].

The Examiner's motivation to modify Wolfbeis in view of De Castro (by reason of the above statement) is premised on an assertion that both references disclose a mechanism to indicate the presence of sulfides in a gas sensor "via a change in color." Based on this, the Examiner rationalizes that the mechanism that exhibits a change in color (the Examiner uses the term "detectable component or agent") in De Castro can therefore be substituted for the mechanism that indicates a change in color in Wolfbeis. In other words, the Examiner argues that because both references discuss the detection of sulfides, their detection methods, although different, can be substituted one for the other. Using this logic, the Examiner concludes one of ordinary skill in the art would find it obvious to substitute the transition metal complexes disclosed in De Castro for the mechanism in Wolfbeis. The applicants respectfully disagree because De Castro does not disclose the use of transition metals to detect sulfides.

1. *The Examiner's modification of Wolfbeis to use transition metal complexes to detect sulfides is not supported by De Castro.*

Even if there were proper motivation to modify Wolfbeis in view of De Castro, what the Examiner is asserting to be the resulting modified Wolfbeis reference is not supported by the disclosure of De Castro.

Preliminarily, in Example 1, Wolfbeis et al. discloses that the presence of hydrogen sulphide ( $H_2S$ ) is detected using lead (II) nitrate, which is colorless, to form lead sulphide, which is black. In Example 2, Wolfbeis et al. discloses forming an emulsion of lead (II) nitrate and the pH indicator Carboxy-SNARF-X (a proprietary compound of Molecular Probes Inc. of Eugene, OR) at pH 7.0. This membrane dye emulsion has a fluorescence that is quenchable (see column 4, lines 8-18). Exposing the sensor system of Wolfbeis et al. to basic compounds such as ammonia or amines yields 1) an ammonium nitrate (which is colorless), 2) a precipitate of insoluble, white lead hydroxide, 3) a pH colour change from the pH indicator, and 4) an increase in the detectable fluorescence from a reduction in quenching. That is, the sensor system of Wolfbeis et al. as disclosed in Example 2 is a combination of a pH indicator with a heavy metal fluorescence quencher. Thus, the

chemistry of Examples 1 and 2 in Wolfbeis et al. does not involve or suggest a ligand exchange reaction.

The Examiner suggests replacing this mechanism of Wolfbeis et al. to detect sulfide compounds with a transition metal complex taught by De Castro. De Castro, however, like Wolfbeis et al., does not disclose using transition metal complexes to detect sulfide compounds.

De Castro discloses examples of relevant detectable analytes for monitoring health, industry, and the environment. See Col. 13, lines 24-28. Included in this list of fourteen (14) different analytes is hydrogen sulfide. To detect these analytes, De Castro discloses a wide variety of mechanisms, including the use of transition metal complexes and other appropriate reagents based on organic, organometallic, or inorganic compounds to (See col. 14, lines 41-44). This broad matrix of possibilities - fourteen different analytes and four broad classes of complexes/compounds - cannot be said to be a teaching that transition metal complexes can be used to indicate the presence of sulfides, as used in the Office Action. In fact, a closer inspection of De Castro reveals that the more specific teachings show that transition metals can be used to detect something other than sulfides. In particular, De Castro discloses transition metal complexes such as cobalt chloride to detect the presence of water. The applicants note that De Castro also makes express reference to other ligand exchange compounds (although not transition metal complexes) useful in detecting oxygen such as polyalkylpolyamines, macrocyclic compounds, and amino acids that change from a light red or pink color to brown, once oxygen is detected. See col. 14, lines 19-40. For completeness, the applicants also note that De Castro references U.S. Patent No. 5,096,724, which discloses transition metal complexes that undergo a ligand exchange reaction with oxygen. Nonetheless, the applicants can find no disclosure or suggestion in De Castro (or U.S. Patent No. 5,096,724) of using a transition metal complex in a ligand exchange reaction to detect the presence of sulfide compounds.

In short, De Castro does not teach using transition metal complexes to detect sulfide compounds, and the rejection relies on this teaching to reach the tertiary references which the Office Action uses to satisfy the particular transition metals claimed. Because De Castro does not disclose the use of transition metal complexes to detect sulfide compounds, the Examiner's conclusion that the modification of Wolfbeis et al. in view of De Castro to

produce a transition metal complex mechanism for the detection of sulfide compounds is in error. The Examiner has therefore failed to set forth a *prima facie* case for obviousness. Reconsideration is respectfully requested.

2. *The Examiner is improperly using hindsight gleaned from applicants' own invention to form the rejection.*

The applicants submit that the Examiner is improperly using hindsight gleaned from the applicants' own invention. That is, the Examiner is not taking into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made, but is improperly including the knowledge gleaned from applicants' disclosure. *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

After the applicants successfully argued that a rejection using Wolfbeis in view of Moretti and Dojindo online was improper, the Examiner added new references of De Castro, Wallach, Jeffrey et al., and Werkhoven et al. to support a rejection and to use to link the primary reference, Wolfbeis, with the tertiary references. While the applicants believe that the use of De Castro is incorrect for the reasons discussed above in Section 1, even assuming that De Castro taught what the Office Action alleges, this back-filling of references could only have been done using the invention as a roadmap. In this event, the applicants refer to the following quotation from *Ruiz v. A.B. Chance Co.*, 69 USPQ2d 1686 (Fed. Cir. 2004):

The 'as a whole' instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result--often the very definition of invention.

The applicants also contend that another example of hindsight is demonstrated at page 6, paragraph 11 of the Office Action. There, the Examiner asserts that selecting the particular transitional metal-ligand complex of palladium-fluorexon complex would have been obvious depending on (1) the particular type of food product, (2) the type of fluorescent measurement used, and (3) the particular type of microbial spoilage detected.

While support for these *general* propositions is provided for in the tertiary references, the applicants fail to see how these general teachings render obvious the *particulars* of, for example, claim 13. Only with hindsight gleaned from the applicants' disclosure can this rejection be supported.

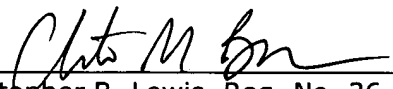
Finally, the applicants submit that hindsight reasoning was used by the Examiner in making the link between sulfides and transition metals in De Castro. As mentioned above, De Castro lists fourteen detectable analytes and "transition metal complexes and other appropriate reagents based on organic, organometallic, or inorganic compounds" to detect the analytes. However, De Castro provides only an enabling disclosure of transition metal complexes to detect moisture and oxygen. There is no disclosure of detecting sulfide compounds with transition metal complexes. Therefore, to match up sulfides with transition metal compounds, of all of the possibilities, especially when there is no specific teaching to that effect, could have only been made by having learned from the applicants' disclosure.

In sum, but for the benefit of applicants' invention, the applicants' submit that a person of ordinary skill in the art would not be motivated to combine the cited references or use the references as has been done in the Office Action. For at least this additional reasons, the Examiner's rejection is in error. Reconsideration is respectfully requested.

### III. Conclusion

The Applicants request a telephonic interview with the Examiner to facilitate the prosecution of the application, if necessary. The applicants representatives will call the Examiner to schedule any needed telephonic interview accordingly. Nonetheless, in view of the arguments set forth above, the applicants respectfully request withdrawal of the rejections and request early notification of allowance of the pending claims.

Respectfully submitted,

  
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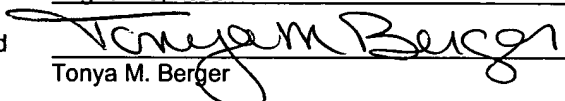
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Dated: August 10, 2005  
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